

REMARKS

In view of the above amendments and the following remarks, favorable reconsideration of the outstanding office action is respectfully requested.

Claims 87-94 and 102-104 remain in this application. Claims 1-86 and 95-101 have been canceled. Applicant believes that no new matter is added to the application as part of this response.

1. Amendments

No amendments are being made in this response.

2. Claim Rejections - 35 U.S.C. §103 – Pluijms in view of Narasimham and Uno et al.

The Examiner has rejected claims 87-94 and 102-104 under 35 U.S.C. §103(a) as being unpatentable over Pluijms (U.S. 4,746,345) in view of Narasimham (U.S. 4,941,905) and Uno et al. (U.S. 6,240,235).

Pluijms is directed to a method of making solid glass preforms for optical fiber manufacture by collapsing hollow tubular glass preforms. The hollow preforms have a refractive index varying across the wall thickness to achieve desired properties, such as the correct refractive index profile for a desired optical fiber. Pluijms teaches the use of a hot plasma in the collapse process to obviate some of the problems which may occur in collapsing hollow preforms with the use of moving gas burners.

The Examiner asserts that “[t]he teachings of Pluijms differ from those of the applicant in that the applicant teaches providing a longitudinal glass SiO₂ soot tube and consolidating the soot tube into a glass.” Applicant asserts that the teachings of Pluijms differ in from the claimed invention in many more significant respects.

Independent claim 87 recites the steps of “providing a longitudinal glass tube, providing a longitudinal mold having a flat sided polygonal shape, positioning said longitudinal glass tube proximate said longitudinal mold, heating said longitudinal glass tube, applying a deforming fluid pressure to said heated longitudinal glass tube wherein said glass tube deforms and conforms to said mold, cooling said deformed glass tube to provide a flat sided polygonal shaped glass tube, and cutting a flat side from said flat sided polygonal shaped glass tube.”

While Pluijms does suggest the provision of a longitudinal glass tube and the heating of that glass tube, it neither teaches nor suggests any of the other limitations of claim 87. For example, Pluijms neither teaches nor suggests the provision of a longitudinal mold having a flat sided polygonal shape, or the positioning of the glass tube proximate the mold. In Pluijms, the surface tension of the heated glass is sufficient to collapse the tube into a solid rod; no molding is required or desired.

Similarly, Pluijms neither teaches nor suggests the application of a deforming fluid pressure to the heated glass tube to deform and conform it to the mold. Again, in Pluijms, the surface tension of the heated glass is sufficient to cause the collapse. There is no molding step of any kind suggested in Pluijms.

Further, Pluijms neither teaches nor suggests the formation of a flat sided polygonal shaped glass tube. Pluijms teaches the collapse of a glass tube in order to form a solid rod. The object of Pluijms is to remove the airspace in the middle of the tube to give the solid rod, in fact teaching away from the formation of a hollow glass tube. Further, the glass rod of Pluijms is substantially circular in cross section, as it is formed from the surface tension induced collapse of a circular hollow tube. Pluijms neither teaches nor suggests the desire for a flat sided longitudinal glass body. In fact, Pluijms stresses the need to avoid acentricity (at col. 1, line 67).

Lastly, Pluijms neither teaches nor suggests the cutting of a flat side from a flat sided polygonal shaped glass tube. The solid rods of Pluijms are generally meant to be drawn into optical fiber, which requires no cutting of a side from the tube. Pluijms also suggests making graded index lenses from a graded index solid rod by dividing it into wafers of suitable thickness; however, this would require cutting cross-sectional pieces from the rod, and not cutting a side off of it.

Applicant submits that the skilled artisan practicing the process of Pluijms would not be motivated to modify it to produce the claimed invention. Pluijms is directed toward the formation of cylindrical solid graded index glass rods, and focuses on a method to collapse a glass tube to remove the airspace in the center of the tube. The skilled artisan practicing the method of Pluijms would in fact be trying to avoid the formation of a tube. Further, the use of a plasma flame as described in Pluijms would not be amenable to the molding process described in the present invention.

Even if there were some motivation to modify Pluijms, Applicant submits that Narasimham and Uno et al. do not teach or suggest the many claimed process steps

not found in Pluijms. Narasimham is directed to the consolidation of a soot preform into glass performs for the manufacture of optical fiber, but, like Pluijms, provides no teaching or suggestion of the molding and cutting steps recited in independent claim 87.

The Examiner summarily asserts that Uno et al. "teach the use of a polygon shaped glass tube in manufacturing," but gives no indication as to where this teaching can be found in the reference. Applicant submits that Uno et al. does not teach the use of polygon shaped glass tubes, but rather is directed to the press-molding of solid glass performs into highly-toleranced shapes such as optical fiber holders or polygonal-sided flat mirrors. A polygonal-sided mirror (FIG. 24) is produced by press-molding a flat glass block (see cols. 33-34, and Example 31); no polygonal glass tube appears to be described. Further, Uno et al. neither teaches nor suggests the cutting of a flat side from a polygonal glass tube.

Because there would be no motivation for the skilled artisan to modify Pluijms to provide a flat sided polygonal glass tube then to cut that tube, and because the proposed combination of references do not teach each and every limitation of claim 87, Applicant submits that the Examiner has not made a prima facie case of the obviousness of claim 87, and that claim 87 is patentable over the cited references. Claims 88-94 depend from claim 87; Applicant asserts that they are patentable over the cited references for at least the reasons discussed above with respect to claim 87.

Claim 102 recites a method of making a low OH silicon oxyfluoride glass blank. The method of 102 recites the steps, *inter alia*, of exposing a SiO₂ soot to a chlorine atmosphere; flushing residual chlorine, and consolidating the soot into a silicon oxyfluoride glass having an OH level less than 1 ppm.

The Examiner does not appear to have considered this independent claim separately from independent claim 87, and has not provided a rationale for its rejection as unpatentable over the combination of Pluijms, Narasimham, and Uno et al. Applicant notes that neither Pluijms, Narasimham, nor Uno et al. teach or suggest the use of chlorine drying to yield a silicon oxyfluoride glass having an OH level less than 1 ppm, and submits that claim 102 would be patentable over any combination of the three cited references. Claims 103 and 104 depend from claim 102, and are believed to be likewise patentable over the cited references.

Appl. No.: 10/733,009
Amdt. Dated: July 30, 2004
Reply to Office Action of: May 10, 2004

As such, Applicant requests that the Examiner withdraw the rejections under 35 U.S.C. §103(a) of claims 87-94 and 102-104.

3. Conclusion

Based upon the above amendments, remarks, and papers of record, Applicant believes the pending claims 87-94 and 102-104 of the above-captioned application are in allowable form and patentable over the cited references. Applicant respectfully requests reconsideration of the pending claims and a prompt Notice of Allowance thereon.

Applicant believes that no extension of time is necessary to make this Response timely. Should Applicant be in error, Applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. §1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to James V. Suggs at 607/974-3606.

Date: 7-30-04

Respectfully submitted,

CORNING INCORPORATED



James V. Suggs
Registration No. 50,419
Corning Incorporated
Intellectual Property Department
Mail Stop SP-TI-03-1
Corning, NY 14831